velleman CS300 Metal Detector with LCD User Manual

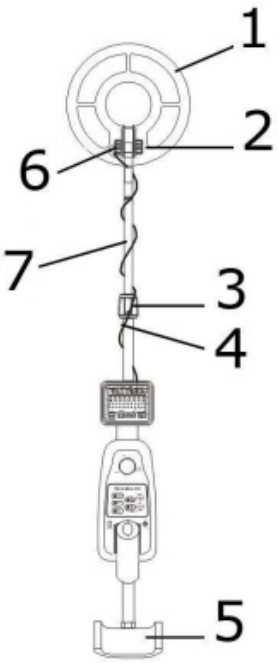
velleman®

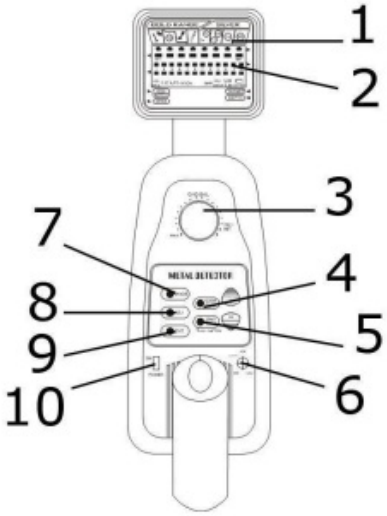
CS300
METAL DETECTOR WITH LCD

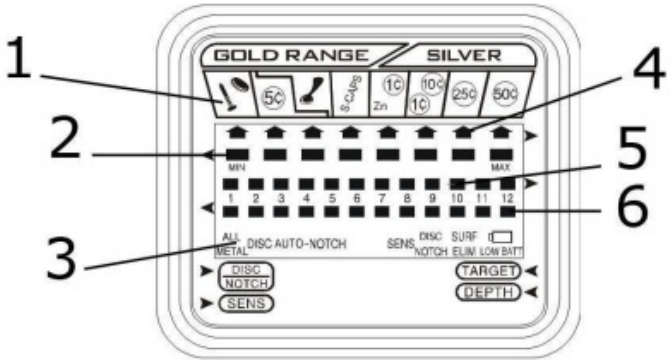
User Manual

Contents

CS300 Metal Detector with LCD







Introduction

To all residents of the European Union
Important environmental information about this product

 This symbol on the device or the package indicates that disposal of the device after its lifecycle could harm the environment. Do not dispose of the unit (or batteries) as unsorted municipal waste; it should be taken to a specialized company for recycling. This device should be returned to your distributor or to a local recycling service. Respect the local environmental rules.
If in doubt, contact your local waste disposal authorities.
Thank you for choosing Velleman! Please read the manual thoroughly before bringing this device into service. If the device was damaged in transit, do not install or use it and contact your dealer.

Safety Instructions

	Keep the device away from children and unauthorised users.
	Caution: wearing headphones in public places may lead to hazardous situations as tr affic noise or audible warning signals are subdued.
	NEVER TOUCH AMUNITION OR OTHER POTENTIALLY LETHAL OBJECTS. Clearl y mark the finding location – have somebody guard the site when possible – and cont act the local authorities at once.

General Guidelines

Refer to the Velleman® Service and Quality Warranty on the last pages of this manual.

- Protect this device from shocks and abuse. Avoid brute force when operating the device.
- Protect the device against extreme heat, dust and moisture.
- Familiarise yourself with the functions of the device before actually using it.
- All modifications of the device are forbidden for safety reasons.
- Only use the device for its intended purpose. Using the device in an unauthorised way will void the warranty.
- Damage caused by disregard of certain guidelines in this manual is not covered by the warranty and the dealer will not accept responsibility for any ensuing defects or problems.
- The warranty does not cover damage caused by salty environments.
- Always make sure to comply with local rules and regulations.
- If the device is not used for a long time, remove the batteries. Leaking batteries can cause serious damage.

Features

Non-Motion Detection Mode: Only in ALL-METAL mode. In this setting, the metal detector will sound only when the target is located under the search coil – you will not need to sweep the detector.
Motion Detection Mode: Can be used in ALL-METAL, DISCRIMINATION, NOTCH and AUTO NOTCH modes. A target cannot be detected unless you sweep the search coil.

Glossary

Following terms used throughout the manual are standard terminology among detectorists.

- **Elimination**
  Reference to a metal being “eliminated” means that the detector will not emit a tone, not light up an indicator when a specified object passes through the coil’s detection field.
- **DISC – Discrimination**
  When the detector emits different tones for different types of metal, and when the detector “eliminates” certain metals, we refer to this as the detector “discriminating” among different types of metals.
  Discrimination is an important feature for professional detectorists. Discrimination allows the user to ignore trash and otherwise undesirable objects.
- **Notch**
  Notching is the elimination of an item or range of items within the metallic spectrum. We “notch out” an object or objects selectively.
- **Auto-notch**
  It eliminates trash metals automatically and keep the detection for most coins. The auto-notch range is preset and not adjustable.
- **Relic**
  A relic is an object of interest because of its age or its association with the past. Many relics are made of iron, but can also be made of bronze or other precious metals.
- **Iron**
  Iron is a common, low-grade metal that is an undesirable target in certain metal detecting applications.
  Examples of such undesirable iron objects are old cans, pipes, bolts and nails. Sometimes, the desired targetis made of iron. Property markers, for instance, contain iron. Valuable relics can also be composed of iron such as cannon balls, old armaments, and parts of old structures and vehicles.
- **Ferrous**
  Adjective for an object made of or containing iron.
- **GND TRAC – Ground tracking**
  The process of finding the exact location of a buried object. Long-buried metals can appear exactly like the surrounding soil and can therefore be very hard to isolate from the soil.
- **Pull-tabs**
  Discarded pull-tab from beverage cans are the most bothersome trash items for the treasure hunter. They come in many different shapes and sizes, and can be eliminated from detection. However, some other valuable objects have a magnetic signature similar to pull-tabs and will also be eliminated when discriminating out pull-tabs.
- **GND BAL – Ground balance**
  The ability of a metal detector to cancel or ignore ground mineralization, eliminating false signals from severe ground conditions and only emitting a tone when a metal object is detected.
- **SURF ELIM – Surface elimination**
  A detector’s ability to ignore all targets on or near the ground’s surface, which is useful in heavy trash areas.

Overview

Refer to the illustrations on page 2 of this manual.
Metal Detector

1	search coil
2	knob
3	locking nut
4	cable
5	armrest
6	nut
7	stem

Control Panel

1	target indicator
2	LCD
3	GND BAL
4	SURF ELIM
5	GND TRAC
6	VOL
7	MODE
8	ADJ
9	ENT
10	POWER

GND BAL – ground balance
SURF ELIM – surface elimination. Can be sued in DISCRIMATION, NOTCH and AUTO NOTCH modes to eliminate metallic particles in the surface.
GND TRAC – Ground Trac®. Can be used in ALL METAL mode. Permits the unit to maintain optimum ground balance at all times.
VOL – volume.
MODE – mode selector.
ADJ – adjustment. Adjustment button for sensitivity and discrimination range.
ENT – enter. Confirming or rejecting the target in NOTCH range.
LCD

1	target icon
2	DISC/NOTCH range
3	operating mode
4	target indicator
5	depth indicator
6	sensitivity indicator

The target indicator consists of an LCD display and target icons. When the detector locates an object, an arrow appears below the target icon of the type of material which is probably being detected. The depth of the target is also displayed.

- If the detector receives a strong signal, the arrow appears steadily. If the signal is weak, the arrow blinks or does not appear.
- The target icons are only visual references to help you decide whether or not an item is worth investigating.

GOLD RANGE

Iron/foil (): indicates that the target is probably iron or foil. Some oxidized iron might actually register somewhere within the SILVER range.

Nickel (): indicates that the target is probably a nickel object.

Pull tab (): indicates that the target is probably a pull tab from an aluminium can. Some rough gold items might register within the pull tab category.

S-CAPS (): indicates that the target is probably a type of metal like a bottle cap with whorl. Some small gold items might register within this category.

Zinc/copper (): indicated that the target might be a zinc or copper object. Some larger gold items might register within the 1¢ category.

SILVER RANGE

10¢/1¢ (): indicates that the target is probably an old 1¢, 10¢ or aluminium coin.

25¢ (): indicates that the target is probably a 25¢ or a small silver coin. Some larger aluminium coins might register within this category.

50¢ (): indicates that the target is probably a 50¢ coin. Some larger silver coins might register within this category.

Tones

If the detector is set to the ALL-METAL mode, it sounds a single tone when it detects any type of metal.
If you set the detector to the DISC or NOTCH modes, the built-in audio identification system sounds a unique audio tone for each of the three categories of metal. This makes it easier to identify the metal being detected.

- The detector sounds a low tone when it detects small gold objects, a nail, a bottle cap or nickel.
- The medium tone is for aluminium pull tabs, zinc or copper items. Depending on the alloys used to make them, about 15 percent of gold rings cause the detector to sound a medium tone.
- A high tone is for brass or silver items. Highly oxidized iron may generate a medium or high tone.

Preparation

7.1 Assembling your Metal Detector

Assembling your detector is easy and requires no special tools. Just follow these steps:

1. Remove the fixation system of the search coil (nut and bolt system). Insert the stem and align the holes on the search coil bracket and the stem. Push the bolt through the holes and tighten with the nut knob.
   CAUTION: Do not tighten the search coil fixation too hard. Do not use tools such as pliers to tighten it.
2. Insert the arm support into the end of the stem and tighten the lock screw at the back of the control housing.
3. Turn the stem's lock nut clockwise until it loosens.
4. Adjust the stem length to have the search coil level with and about ½ to 2 inches above the ground when you

stand upright with the detector in your hand, your arm relaxed at your side.

5. Turn the stem's lock nut counter-clockwise to lock it in place.
6. Wind the search coil cable around the stem. Leave enough slack in the cable. Insert the search coil's plug into the search coil jack on the detector's control housing.
   CAUTION: The search coil's plug fits into the jack only one way. Do not force the plug or you could damage it.
7. Loosen the search coil fixation knob, adjust the search coil to the desired angle and tighten the nut knob.

7.2 Installing the Batteries

1. Make sure the POWER switch is turned off.
2. At the back of the control housing, slide the battery covers off away from the middle.
3. Place a 9 V battery in each battery compartment matching the polarity symbols (+ and -) marked inside.
4. Slide the battery covers back on.

⚠	Do not puncture or throw batteries in fire as they might explode. Do not attempt to recharge non-rechargeable batteries. Dispose of batteries in accordance with local regulations. Keep batteries away from children. Remove the batteries from the battery compartment when the metal detector is not in use.

Operation

8.1 Code of Conduct

- Do not interfere with archaeological sites or ancient monuments. Join your local archaeological society if you are interested in ancient history.
- Do not leave a mess. Use a sharpened trowel or knife to cut a neat circle or triangle, extract the object and carefully replace the soil and the grass.
- Help keep your country tidy. Bottle tops, silver paper and tin cans belong in a waste bin. Rusty iron and other scrap should be collected and taken to a specialized company for further handling.
- Do not trespass: ask permission before venturing onto private property.
- Report all historical finds to the local museum or government and get expert help if you accidentally discover a site of archaeological interest.
- Be very careful if you discover any live ammunition or any lethal object such as an unexploded mine. Do not touch the object! Mark the site carefully and report the find at once to the local police.
- Do not leave gates open when crossing fields and do not damage crops or frighten animals.
- Try to get along with any other detectorist you may meet. There is much to be learnt from experienced users.
- Always obey local laws and regulations. Contact your local government for more information.

⚠	It is illegal for anyone to use a metal detector on a scheduled ancient monument unles s permission has been obtained from the Historic Buildings and Ancient Monument Co mmission for England or the Secretary of State for the Environment in Scotland and W ales.
⚠	It is forbidden to use a metal detector in order to carry out excavations of monuments and objects, which may relate to prehistory, history, art and archaeology without prior a dministrative authorization issued in terms of the qualifications of the applicant and the nature and modalities of the excavators.

8.2 Switching on your Detector
First turn the volume knob to 12 o'clock (halfway between MIN and MAX). Slide the power switch to ON. All symbols are displayed on the LCD screen. The detector sounds a low, a medium and a high tone respectively. After about 2 seconds, the detector automatically enters the stand-by mode. The LCD now displays SENS, DISC and their respective values before power-down.

8.3 Setting the Operating Mode
The detector has four operating modes: ALL-METAL, DISC, NOTCH and AUTO NOTCH. Select one of these modes by pressing the MODE button at the left of the control panel. The LCD will display the selected mode.

- ALL-METAL: used for detecting any type of metal. When hunting in this mode, it is important that the detector be ground balanced to offset the effects of minerals present in the soil, or to balance the effects of salt water when hunting on beaches. To do so, press GND TRAC several times to allow the detector to stabilize. Lower the search coil and slowly sweep the search coil at about one inch above the ground. When the unit passes over a metal object, the detector will display the depth of the object and emit a tone. The higher the tone, the closer you sweep over the object.
- DISC: used for target discrimination. Set the discrimination range by pressing ADJ. Increase or decrease the range with + or – respectively.
- NOTCH: used to ignore or to accept a specific type of metal. The LCD displays a row of bars below the icons. Press + or – to select an icon. You will see one of the arrows above the bar blink. Press ENT to notch the item pointed by the blinking arrow. At this time, the bar below the arrow will disappear and the detector will ignore the notched item. Press ENT again to reselect the item and to allow the detector to detect the item.
- AUTO NOTCH: used to automatically reject trash such as bottle caps, pull tabs or S-CAPS without loss of coins.

REMARKS:

- In DISC, NOTCH and AUTO NOTCH modes, press ADJ to adjust the sensitivity (SENS). Press + to increase, press – to decrease.
- Set the sensitivity to a higher lever in order to detect deeply buried targets. Setting the sensitivity to the maximum level however, will make the detector prone to interference and false signals from aerials and other electric lines.
- Selection of undesired items as in the NOTCH mode is not available in the AUTO NOTCH mode.
- Ground balance and Ground Trac® are not available in DISC, NOTCH and AUTO NOTCH modes.
- Use the surface elimination function (SURF ELIM) in the DISC, NOTCH and AUTO NOTCH modes when hunting on soils containing lots of metallic trash in order to balance the signal of a relatively large object and to optimize the detection results. The surface elimination function allows the unit to discriminate deeply buried objects.

8.4 Testing and Using the Detector

To learn how the detector reacts to different metals, you should test it before you use it the first time. You can test the detector indoors and outdoors.

INDOOR testing and use

NOTE: Never test the detector on a floor inside a building. Most buildings have metal of some kind in the floor, which might interfere with the objects you're testing, or mask the signal completely.

1. Slide the POWER switch to ON.
2. Select the operating mode.
3. Place the detector on a wooden or plastic table, and remove any watches, rings or metal jewellery you are wearing.
4. Adjust the search coil so the flat part points towards the ceiling.
5. In DISC, NOTCH and AUTO NOTCH modes, slowly sweep a sample of the material you want the detector to find (such as a gold ring or a coin) 2 ~ 3 inches above the face of the search coil. When the detector detects any metal within the selected range, it sounds a tone and an arrow appears below the target icon.
   The LCD displays the depth of the target.
   In ALL-METAL mode, hold a sample about one foot above the search coil and slowly sweep the search coil. When the detector detects the sample, it sounds a tone and the depth will be displayed.
   NOTE: if you are using a coin, the detector will detect it more easily if you hold it so that a flat side is parallel with the flat side of the search coil. A sweep with the side of the coin over the search coil might cause false indication and unstable display of the arrow.

OUTDOOR testing and use

1. Slide the POWER switch to ON.
2. Select the operating mode.
3. Find an area on the ground outside where there is no metal.
4. Place the material you want the detector to find (such as a gold ring or a coin) on the ground.
   NOTE: If you are using a valuable metal sample such as gold to test the detector, mark the area where you placed the item, to help you retrieve it later. Do not place it in tall grass or weeds.
5. Hold the search coil level to the ground about 1 ~ 2 inches above the surface, slowly move the search coil over the area where you placed the sample, sweeping the search coil in a side-to-side motion.
6. If the detector detects the item, it sounds a tone, and an arrow and the depth appear on the display below the target icon.
7. If the detector does not detect the item, make sure that the target mode is set correctly for the type of metal you are searching for. Also make sure that you are moving the search coil correctly.

8.5 Search Coil Sweeping Hints

- Never sweep the search coil as if it were a pendulum. Raising the search coil while sweeping or at the end of a sweep will cause false readings.
- Sweep slowly. Hurrying will cause you to miss targets.
- It's better you sweep the search coil from side to side in a straight line and keep the search coil parallel with the ground.
- The detector responds with a signal when it detects most valuable metal objects. If a signal does not repeat

after you've swept the search coil over the target a few times, the target is probably junk metal.
- False signals can be caused by trashy ground, electrical interference, or large irregular pieces of junk metal.
- False signals are usually broken or non-repeatable.

8.6 The Ground Balance
Ground balancing the detector is simply, the term used to describe the function of adjusting the metal detector to ignore the minerals in the soil so that they are not detected by the metal detector.

- Begin with setting the GND BAL knob to PRESET. Lift the search coil waist high. Press GND TRAC several times to stabilize the detector.
- Lower the search coil to about one inch above the ground. The detector is properly balanced when it does not emit any tones. Readjust the ground balance if necessary. To do so, lift the search coil and turn the GND BAL knob slightly to the left. Push GND TRAC several times and repeat the step above.

REMARKS:

- Ground balance the detector in an area exempt of any metal objects.
- Turn the GND BAL knob with small increments in order to achieve an optimum balance.
- Press GND TRAC after each ground balance adjustment.

8.7 Pinpointing a Target
Accurately pinpointing a target makes digging it up easier, but it takes practice. We suggest you practise finding sample on your own property before you start searching other locations.
Follow these steps to pinpoint a target:

1. When the detector detects a buried target, continue sweeping the search coil over the target in a narrowing side-to-side motion.
2. Make a visual note of the exact spot on the ground where the detector beeps.
3. Stop the search coil directly over this point on the ground. Then move the search coil straight forward away from you and straight back towards you a couple of times and make another visual note.
4. Repeat steps 1 to 3 at a right angle to the previous search line. Make an "X" mark on the ground. The target will be directly below the "X" at the point of the beep response.

8.8 Factors that Affect the Detecting
It is difficult to have an accurate detecting result. Sometimes the detecting may be restricted by some factors:

- the angle of the object buried in the soil;
- the depth of the target;
- the level of oxidization of the target;
- the size of the target;
- electro-magnetic and electrical interference surrounding the object.
  Hunting patiently and correctly, and practising several times will get you satisfactory results.

8.9 Using Headphones

1. Make sure your headphones have a 3.5mm plug.

2. Set the VOL knob to zero.
3. Insert the headphones' plug into the PHONE jack. The internal speaker will automatically disconnect.
4. Set the VOL knob to the desired setting. Do not listen at extremely high volume levels, as it may lead to partial or permanent hearing loss.

Troubleshooting

The detector is emitting false signals.
The detector's sensitivity may be set too high. Try cutting back the sensitivity slightly until the false signal disappears. Remember to sweep the detector slowly. Some false signals will occur on highly rusted metals, but if the signal does not appear over the same area while sweeping over it again, then the target is usually not worth further hunting.
The LCD readout is not locking or ID'ing while sweeping over the target. There is more than one tone being emitted over the same target.
This will usually occur with the presence of more than one object. Objects of a metal unknown to the detector will not be signalled. Sometimes, oxidation can also make the ID arrows and tones jump around. Try cutting back the sensitivity slightly if it is set at a high value.
Your detector is unstable and emits a pulsing, distorted tone instead of a clear tone.
The presence of interfering signals, such as power lines or another detector nearby, may disturb the frequencies of your metal detector.

Cleaning and Maintenance

Your CS300 metal detector is an example of superior design and craftsmanship. The following suggestions will help you take care of your metal detector so you can enjoy it for years.

	Handle the detector gently and carefully. Dropping it can damage circuit boards and cases a nd can cause the detector to work improperly.
	Use the detector only in normal temperature environments. Temperature extremes can short en the life of electronic devices, or damage the detector's exterior.
	Keep the detector away from dust and dirt, which can cause premature wear of parts.
	Wipe the detector with a damp cloth occasionally to keep it looking new. Do not use harsh ch emicals, cleaning solvents or strong detergents to clean the detector.

Modifying or tampering with the detector's internal parts may cause malfunctions. The search coil is waterproof and can be submerged in either fresh or salt water. However, do not let water enter the detector's control housing. Rinse with fresh water after using the search coil in salt water to prevent corrosion of metal parts.

Technical Specifications

3.5 mm headphone jack
power supply …….. 2 x 9 V battery (6LR61C, not included)
frequency ……. 6.6 kHz

non-motion detection …….. yes (in all-metal mode)
motion detection modes …….. discriminate, notch, auto notch
sensitivity adjustment …… 12 levels
sensitivity …… 25 cm (discriminate), 27 cm (all metal)
multi-tone indication …….. 3 tones
signal strength indication …….. yes (in non-motion detection mode)
depth indication …….. 12 segments
LCD …….. 75 x 40 mm
pinpoint (in all-metal mode) …… no
manual ground balance …… yes
surface elimination …… yes
preset saving …….. yes
volume adjustment …… yes
low battery indication …….. yes
search coil size…….. Ø 22 cm

Use this device with original accessories only. Velleman nv cannot be held responsible in the event of damage or injury resulting from (incorrect) use of this device. For more info concerning this product and the latest version of this manual, please visit our website **www.velleman.eu**. The information in this manual is subject to change without prior notice.

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RED Declaration of Conformity

Hereby, Velleman NV declares that the radio equipment type [CS300] is in compliance with Directive 2014/53/EU. The full text of the EU declaration of conformity is available at the following internet address: **www.velleman.eu**.

Velleman® Service and Quality Warranty

Since its foundation in 1972, Velleman® acquired extensive experience in the electronics world and currently distributes its products in over 85 countries.

All our products fulfil strict quality requirements and legal stipulations in the EU.

In order to ensure the quality, our products regularly go through an extra quality check, both by an internal quality department and by specialized external organisations. If, all precautionary measures notwithstanding, problems should occur, please make appeal to our warranty (see guarantee conditions).

General Warranty Conditions Concerning Consumer Products (for EU):

- All consumer products are subject to a 24-month warranty on production flaws and defective material as from the original date of purchase.
- Velleman® can decide to replace an article with an equivalent article, or to refund the retail value totally or partially when the complaint is valid and a free repair or replacement of the article is impossible, or if the expenses are out of proportion.

  You will be delivered a replacing article or a refund at the value of 100% of the purchase price in case of a flaw occurred in the first year after the date of purchase and delivery, or a replacing article at 50% of the purchase price or a refund at the value of 50% of the retail value in case of a flaw occurred in the second year after the date of purchase and delivery.
- Not covered by warranty:

  – all direct or indirect damage caused after delivery to the article (e.g. by oxidation, shocks, falls, dust, dirt, humidity…), and by the article, as well as its contents (e.g. data loss), compensation for loss of profits;

  – consumable goods, parts or accessories that are subject to an aging process during normal use, such as batteries (rechargeable, non-rechargeable, built-in or replaceable), lamps, rubber parts, drive belts…

(unlimited list);

– flaws resulting from fire, water damage, lightning, accident, natural disaster, etc.…;

– flaws caused deliberately, negligently or resulting from improper handling, negligent maintenance, abusive use or use contrary to the manufacturer's instructions;

– damage caused by a commercial, professional or collective use of the article (the warranty validity will be reduced to six (6) months when the article is used professionally);

– damage resulting from an inappropriate packing and shipping of the article;

– all damage caused by modification, repair or alteration performed by a third party without written permission by Velleman®.

- Articles to be repaired must be delivered to your Velleman® dealer, solidly packed (preferably in the original packaging), and be completed with the original receipt of purchase and a clear flaw description.
- Hint: In order to save on cost and time, please reread the manual and check if the flaw is caused by obvious causes prior to presenting the article for repair.
  Note that returning a non-defective article can also involve handling costs.
- Repairs occurring after warranty expiration are subject to shipping costs.
- The above conditions are without prejudice to all commercial warranties.

The above enumeration is subject to modification according to the article (see article's manual).

Made in PRC
Imported by Velleman nv
Legen Heirweg 33, 9890 Gavere, Belgium
www.velleman.eu

Documents / Resources

	velleman CS300 Metal Detector with LCD [pdf] User Manual CS300 Metal Detector with LCD, CS300, Metal Detector with LCD, Detector with LCD, LCD